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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/778,144	02/07/2001	Thomas Hodge	A33942; 070337.0237	8595
21003	7590	12/30/2003	EXAMINER	
BAKER & BOTTS 30 ROCKEFELLER PLAZA NEW YORK, NY 10112			HU, HENRY S	
			ART UNIT	PAPER NUMBER

1713

DATE MAILED: 12/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/778,144

Applicant(s)

HODGE, THOMAS

Examiner

Henry S. Hu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 February 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

1. This Office Action is in response to the Amendment (Paper No. 11) filed on October 6, 2003. The non-elected Claims 13-24 were cancelled, and claim 10 was amended to a correct independent form. No new matter or claim was added. **Claims 1-12 are now pending.** An action follows.

Claim Rejections - 35 USC 102

2. *The limitation of amended parent Claim 1 in present invention relates to a heavy-vehicle tire comprising a tread which is formed from a cross-linked rubber composition, the composition comprising: (a) An elastomeric matrix comprising a diene elastomer having one or more of its chain ends a function group which is active for coupling to a reinforcing white filler, (b) A reinforced filler comprising a reinforced white filler in at least 50 wt% of total filler, and (c) A bonding agent for polymer and white filler. See other limitations of Claims 2-12.*

Response to Argument

3. Applicant's Amendment (Paper No. 11) filed on October 6, 2003 has been fully considered but they are not persuasive. The focal arguments related to the patentability will be addressed as follows:

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Since parent Claim 1 has no amended, while parent Claim 10 is only amended to a correct independent form, the same rational recited in paragraphs 3-12 of the previous action dated 04-25-2003 (Paper No. 9) is thereby incorporated herein by reference.

4. Claims 1-6, 8 and 11 are rejected under 35 U.S.C. 102(e) as being anticipated by Araki et al. (US 6,177,503) as evidenced by Micouin et al. (US 6,191,205).

5. **Applicants:** Applicant has claimed an unexpected way of obtaining a cross-linked rubber composition useful for the tread of heavy-vehicle tire. The key argument is that **Araki's copolymers having ends are functionalized only by SnCl_4 and thereby are for coupling to carbon black but not reinforcing white filler.**

6. **Examiner:** As discussed in Second Non-Final Office Action, Araki et al. have disclosed a rubber composition useful for making the **tread of tire**, and the composition comprising: (a) A diene based rubber including a diene copolymer of 1,3-butadiene and styrene, and **the copolymer has been treated by coupling at chain ends with a coupling agent** (column 5, line 54-column 6, line 60). (b) **Silica filler is used with carbon black**. With respect to the argument by the Applicants, Araki further discloses that **the coupling agent can be selected from the group consisting of coupling agents containing tin, coupling agents containing silicon and coupling agents containing alkoxysilanes**. It is noted that Araki does not specifically mention the coupling reaction between silica and the silane-containing coupling agents as well as the tin coupling agent may be used only to couple carbon black. However, Araki has disclosed that

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various silane-polysulfide coupling agents can be also used, thereby can couple to silica filler as used by present invention on pages 14-15 (column 7 at line 24 – column 8, line 65). A specific silane coupling agent such as bis(alkoxysilylalkyl) polysulfide is commonly used in the art. Additionally, as evidenced by Micouin in the same office action, this composition is useful in making the tread of both passenger-car pneumatic tires and heavy-vehicle tires.

7. Claims 1-3 and 6-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Micouin et al. (US 6,191,205).

8. **Applicants:** Applicant has claimed an unexpected way of obtaining a cross-linked rubber composition useful for the tread of heavy-vehicle tire. The key argument is that **Micouin's copolymers having ends may be only coupled and/or starred or else functionalized with a coupling agent and/or starring or functionalizing agent. Additionally, the use of silica is only shown in the control example.**

9. **Examiner:** Micouin has disclosed a process of making a **diene rubber composition** from endgroup-functionalized diene copolymer, silica filler, and a specific silane coupling agent such as polysulfur organosilane, marked by Degussa under the name of X 50S. Micouin further discloses that such composition is useful in making **treads for both passenger-car tires and heavy-vehicle tires due to improved resistance to rolling since it has good mechanical properties and as low a hysteresis as possible.** With respect to the argument by the Applicants, the use of silica is only shown in the control example. However, Micouin has

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defined the use of silica throughout the specification (see column 1, line 38 – column 5, line 36).

Claim Rejections - 35 USC 103

10. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vasseur et al. (US 5,871,597) in view of Araki et al. (US 6,177,503).

11. **Applicants:** Applicant has claimed an unexpected way of obtaining a cross-linked rubber composition useful for the tread of heavy-vehicle tire. The key argument is that the cited art **does not provide a motivation to combine since the silica used by Vasseur exhibiting lower BET and CTAB surface areas.**

12. **Examiner:** The rejection is sustained since the limitation of Claim 1 has no **limitation of BET and CTAB surface areas.** Even for parent Claim 10, Vasseur's BET and CTAB is low but is overlapping the claimed number. As discussed in early office action, Vasseur is silent about using the cross-linked diene rubber composition for making tread of tire. In light of the fact that both Vasseur and Araki have the same kind of diene rubber composition with silica, it would have been obvious to one having ordinary skill in the art to apply Vasseur's cross-linked diene rubber composition for making tread of tire as taught by Araki. Thereby a tire having better performance may be obtained with such a combination. It is noted there is no evidence to show that silica with lower BET and CTAB cannot be useful for this composition.

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13. Claims 7 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Araki et al. (US 6,177,503) as evidenced by Micouin et al. (US 6,191,205) and in view of Agostini et al (US 5,674,932).

14. **Applicants:** Applicant has claimed an unexpected way of obtaining a cross-linked rubber composition useful for the tread of heavy-vehicle tire. The key argument is that the cited art does not provide a motivation to combine since **Agostini does not make a tire capable of delaying irregular tread wear on tires for heavy loads.**

15. **Examiner:** Regarding Claims 7 and 10, as evidenced by Micouin in the same office action, this composition is useful in making the tread of both passenger-car pneumatic tires and heavy-vehicle tires. It is noted that no BET or CTAB of silica were disclosed, and there is no evidence to show that silica with lower BET and CTAB cannot be useful for this composition.

16. Claims 9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Araki et al. (US 6,177,503) as evidenced by Micouin et al. (US 6,191,205) and in view of Loiselle (US 5,989,719).

17. **Applicants:** Applicant has claimed an unexpected way of obtaining a cross-linked rubber composition useful for the tread of heavy-vehicle tire. The key argument is that the cited

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art of Loisel only discloses liquid silicone rubber composition for used in gaskets and seals thereby do not provide a motivation to combine.

18. **Examiner:** The rejection is sustained regarding Claims 9 and 12, since alkyl alkoxy silane-covering agent for silica is only used as filler. Since the preparation of gaskets, seals and tires all use a rubber composition, they may contain the same filler in order to improve the affinity with the modified diene based polymer and will result an oil-resistant final product.

19. Claims 4-5 and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Micouin et al. (US 6,191,205) in view of Araki et al. (US 6,177,503).

20. **Applicants:** Applicant has claimed an unexpected way of obtaining a cross-linked rubber composition useful for the tread of heavy-vehicle tire. The key argument is that it would not be obvious to use the Araki's endgroup-functionalized diene rubber made from a coupling agent containing silicon or alkoxy silane into Micouin's rubber composition.

21. **Examiner:** The rejection is sustained regarding Claims 4-5 and 10-12, since both Araki and Micouin use a mixture of silica and a silane coupling agent such as polysulfur organosilane. It is noted that Micouin is silent about using a silanol group or a polysiloxane block having a silanol end as the functional end-group of diene elastomer. Araki has taught that diene copolymer can be coupled at chain ends with a coupling agent containing silicon such as silicon tetrachloride or a coupling agent containing alkoxy silane. Such endgroup-functionalized

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diene rubbers will have a large affinity with silica and can be couple together due to the compatibility between same types of silane compounds.

Conclusion

22. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

23. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Henry S. Hu whose **new telephone number is (571) 272-1103**. The examiner can be reached on Monday through Friday from 9:00 AM –5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (571) 272-1114. The fax number for the organization

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where this application or proceeding is assigned is (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications. Any inquiry of general nature or relating to the status of this application or proceeding should be directed to the group receptionist whose telephone number is (703) 308-0661.



Henry S. Hu

July 23, 2003



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SUPERVISORY PATENT EXAMINER
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